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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WEST, JEFFREY R	

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	09/667,297	LOVEGREN ET AL.	
	Examiner	Art Unit	
	Jeffrey R. West	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 13 June 2005.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 17-20 and 24-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 17-20 and 24-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 03 July 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed March 30, 2005, fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it is unsigned. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,457,990 to Oswald et al. in view of U.S. Patent No. 5,969,666 to Burger et al.

Oswald discloses a method for use by a level transmitter to detect a reflection of a transmitted pulse from a first material interface, the method comprising calculating an estimated first reflected pulse amplitude as a function of a reference amplitude of the transmitted pulse (column 9, lines 31-53 and column 10, lines 49-53) and detecting the reflected pulse from the first material interface using the estimated first reflected pulse amplitude by calculating a first threshold value as a function of the estimated first reflected pulse amplitude (column 10, lines 53-58) using a transceiver apparatus for transmitting a pulse having a transmit amplitude and receiving the pulses to produce a signal representing the reflected wave pulses as part of a controlling processor system (column 7, lines 16-30 and Figures 5, 9, and 10).

Oswald discloses a level calculation module executable by the processor system that establishes a level of the first material interface using the signal and the threshold value (column 4, lines 43-56 and column 8, lines 57-47) and outputs this level through a port to a display means (column 7, lines 28-30).

Oswald discloses detecting multiple pulses (column 6, lines 54-58) wherein a first reflected pulse corresponds to the portion of a transmitted pulse reflected at a first material interface between air and a first product (i.e. first and second materials), a second reflected pulse corresponding to the portion of a transmitted pulse reflected at a first material interface between the first product and a second product (i.e. second and third materials), and a fiducial pulse corresponding to the portion of a transmitted pulse reflected at the fiducial interface at the top of the tank (column 4, lines 12-16 and column 7, lines 7-9).

While Oswald generally discloses generating a transmission pulse, Oswald does not specify that the pulse be a microwave pulse.

Burger teaches a radar-based method of measuring the level of a material in a containing comprising a transmitter antenna that generates microwave pulses (column 2, lines 3-23).

It would have been obvious to one having ordinary skill in the art to modify the invention of Oswald to include specifying that the pulse be a microwave pulse, as taught by Burger, because Oswald suggests determining the location of a discontinuity based upon time calculations (column 2, lines 5-12 and column 8, lines 37-40) and Burger suggests that microwave pulses would be advantageous in allowing the determination of the pulse propagation time thereby allowing easier time calculations (column 3, lines 19-31).

Further since Oswald teaches a fiducial interface formed between source and the first material and Burger teaches using an antenna as the source, the combination teaches a fiducial interface formed between the antenna and the first material.

3. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,134,377 to Reddy, III et al. in view of U.S. Patent No. 4,107,993 to Shuff et al.

Reddy discloses a method for use by a level transmitter to detect a reflected pulse of a transmitted pulse (column 1, lines 45-50) from a first material interface (column 3, lines 52-56), the method comprising calculating an estimated first

reflected pulse amplitude as a function of a reference amplitude of the transmitted pulse (column 1, line 64 to column 2, line 2 and column 9, lines 6-20) and detecting the reflected pulse from the first material interface using the estimated first reflected pulse amplitude (column 1, lines 51-54).

As noted above, the invention of Reddy teaches many of the features of the claimed invention and while Reddy does teach transmitting a very short pulse (column 7, lines 58-60), Reddy does not specify that the pulse be in the microwave range.

Shuff teaches a method and apparatus for level measurement using microwaves comprising an antenna (column 3, lines 23-25) that transmits microwave pulses (column 3, lines 46-51) through a hollow transmission line (column 2, lines 19-26).

It would have been obvious to one having ordinary skill in the art to modify the invention of Reddy to include specifying that the pulses be in the microwave range, as taught by Shuff, because, as suggested by Shuff, the combination would have provided very short pulses, such as that disclosed as desired in the invention of Reddy, that would have improved the measurement of Reddy by including pulses that are sensitive to very small changes (column 1, lines 23-27).

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy, III et al. in view of Shuff et al. and further in view of U.S. Patent No. 6,087,977 to Rost.

As noted above the invention of Reddy and Shuff teaches many of the features of the claimed invention including calculating an estimated reflected pulse amplitude as a function of a reference amplitude of a transmitted microwave pulse, but does not specifically include calculating the estimated pulse/threshold value as a function of a correction/attenuation factor.

Rost teaches false alarm rate and detection probability in a receiver comprising a receiver for receiving radar signals (column 1, lines 11-21) using a threshold level that is calculated in accordance with a corrective attenuation factor (column 2, lines 51-58).

It would have been obvious to one having ordinary skill in the art to modify the invention of Reddy and Shuff to specifically include calculating the estimated pulse/threshold value as a function of a correction/attenuation factor, as taught by Rost, because, as suggested by Rost, the combination would have improved the probability of detecting the signals and increased the accuracy of the detection by accounting for degradations of the signal caused by reflections at a range far from the transceiver (column 2, lines 22-25 and column 6, lines 22-49).

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,609,059 to McEwan in view of U.S. Patent No. 5,134,377 to Reddy, III et al.

McEwan discloses a method for use by a microwave level transmitter to detect a (i.e., 200ps = 5 GHz, column 8, lines 40-41) reflected pulse of a transmitted

microwave pulse from a first material interface (column 6, lines 16-18), the method comprising detecting the reflected pulse from the first material interface using a estimated first reflected pulse amplitude (i.e. threshold) (column 8, line 66 to column 9, line 3).

McEwan further discloses that the first material interface is formed between the first and second materials (column 6, lines 16-18).

McEwan also discloses a second material interface located between second and third materials, the third material below the second material, and the method including detecting a second reflected wave pulse corresponding to a portion of the transmitted microwave pulse reflected from the second material interface (column 6, lines 60-67 and column 7, lines 62-65).

McEwan also discloses that a fiducial interface is formed between an antenna (column 6, lines 12-14) and the first material and the method including detecting a fiducial pulse, corresponding to a portion of the transmitted microwave pulse reflected from the fiducial interface (column 6, lines 43-53).

McEwan also discloses the apparatus for carrying out the method comprising an antenna coupled to a transceiver (column 6, lines 12-16) that uses the antenna to transmit the microwave pulse and produce a signal representing reflected wave pulses (column 6, lines 22-25), a microprocessor coupled to the transceiver to control the transceiver and process the signal (column 6, lines 57-59 and column 9, lines 45-47) and a level calculation module executable by the microprocessor adapted to establish a level of a first material interface using the signal and the

threshold value to be provided to a display through an input/output (column 9, lines 32-47).

As noted above, the invention of McEwan teaches many of the features of the claimed invention and while McEwan does teach including detection thresholds for detecting reflections at the first, second, and fiducial interfaces (column 8, line 66 to column 9, line 3), McEwan does not specifically include the means for setting the detection thresholds.

Reddy discloses a method for use by a level transmitter to detect a reflected pulse of a transmitted pulse (column 1, lines 45-50) from a first material interface (column 3, lines 52-56), the method comprising calculating an estimated first reflected pulse amplitude as a function of a reference amplitude of the transmitted microwave pulse (column 1, line 64 to column 2, line 2 and column 9, lines 6-20) and detecting the reflected pulse from the first material interface using the estimated first reflected pulse amplitude (column 1, lines 51-54).

It would have been obvious to one having ordinary skill in the art to modify the invention of McEwan to specify include the means for setting the detection thresholds, as taught by Reddy, because the combination would have provided an improved means for setting the thresholds of McEwan that, as suggested by Reddy, would have provided proper pulse detection without the detection of extraneous noise by employing a threshold specifically adapted to the particular conditions being measured (column 1, line 64 to column 2, line 2 and column 8, line 63 to column 9, line 5).

Further, since the invention of McEwan specifically discloses employing thresholds for detecting reflections at the first, second, and fiducial interfaces (column 8, line 66 to column 9, line 3) and Reddy suggests employing thresholds specifically adapted to the particular conditions being measured, the combination would have employed a specific threshold for detecting each of the reflections at the first, second, and fiducial interfaces.

6. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan in view of Reddy, III et al. and further in view of U.S. Patent No. 6,087,977 to Rost.

As noted above, the invention of McEwan and Reddy teaches many of the features of the claimed invention and while the invention of McEwan and Reddy does teach preventing attenuation error in the reflected pulse measurement (McEwan, column 5, lines 15-21) and insuring that the threshold value remains at a valid level by applying a range factor (McEwan, column 4, lines 35-50), the combination does not specifically teach calculating the estimated pulse/threshold value as a function of a correction/attenuation factor.

Rost teaches false alarm rate and detection probability in a receiver comprising a receiver for receiving radar signals (column 1, lines 11-21) using a threshold level that is calculated in accordance with a corrective attenuation factor (column 2, lines 51-58).

It would have been obvious to one having ordinary skill in the art to modify the invention of McEwan and Reddy to specifically include calculating the estimated

pulse/threshold value as a function of a correction/attenuation factor, as taught by Rost, because, as suggested by Rost, the combination would have improved the probability of detecting the signals and increased the accuracy of the detection by accounting for degradations of the signal caused by reflections at a range far from the transceiver (column 2, lines 22-25 and column 6, lines 22-49).

7. Claims 17-19, 26, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan in view of Reddy, III et al. and further in view of U.S. Patent No. 5,943,908 to Innes et al.

As noted above, the invention of McEwan and Reddy teaches many of the features of the claimed invention and while the invention of McEwan and Reddy does teach setting a plurality of threshold levels based on detected pulse amplitudes for detecting reflections at interfaces between materials with different dielectrics (Reddy, column 3, lines 52-53), as well as teaching that the dielectric constants of the air/material adjacent the antenna and materials affect the reflection (McEwan, column 6, lines 29-34), the combination does not specifically teach further including the dielectric parameters of the materials in calculating the pulse.

Innes teaches a probe for sensing a fluid level comprising means for performing time-domain reflectometery (column 3, lines 26-31) by setting a dielectric of a first material and a second material, below the first material, forming a gas/liquid or liquid/liquid interface (column 3, lines 32-52), and using these known dielectric

parameters in calculating the detected pulse amplitude to account for pulse amplitude variations (column 3, lines 55-62).

It would have been obvious to one having ordinary skill in the art to modify the invention of McEwan and Reddy to include further including the dielectric parameters of the materials in calculating the pulse, as taught by Innes, because Innes teaches that the dielectric constants of the materials of which the pulse passes affects the amplitude of the pulses and therefore the combination would have reduced errors in the measurements by accounting for the variation caused by the materials (column 3, lines 55-62).

8. Claims 27-34, 37, and 39-42, are rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan in view of Reddy, III et al. and Innes and further in view of U.S. Patent No. 6,087,977 to Rost.

As noted above, McEwan in combination with Reddy and Innes, teaches many of the features of the claimed invention and while the invention of McEwan, Reddy, and Innes does teach preventing attenuation error in the reflected pulse measurement (McEwan, column 5, lines 15-21) and insuring that the threshold value remains at a valid level by applying a range factor (McEwan, column 4, lines 35-50), the combination does not specifically teach calculating the estimated pulse/threshold value as a function of a correction/attenuation factor.

Rost teaches false alarm rate and detection probability in a receiver comprising a receiver for receiving radar signals (column 1, lines 11-21) using a threshold level

that is calculated in accordance with a corrective attenuation factor (column 2, lines 51-58).

It would have been obvious to one having ordinary skill in the art to modify the invention of McEwan, Reddy, and Innes to specifically include calculating the estimated pulse/threshold value as a function of a correction/attenuation factor, as taught by Rost, because, as suggested by Rost, the combination would have improved the probability of detecting the signals and increased the accuracy of the detection by accounting for degradations of the signal caused by reflections at a range far from the transceiver (column 2, lines 22-25 and column 6, lines 22-49).

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan in view of Reddy, III et al. and Innes and further in view of U.S. Patent No. 5,973,503 to Kuipers et al.

As noted above, McEwan in combination with Reddy and Innes teaches many of the features of the claimed invention and while the invention of McEwan, Reddy, and Innes teaches setting dielectric constants of the materials in order to determine a value of a first threshold, the combination is silent about the manner in which the dielectric constants are determined before they are set.

Kuipers teaches a process and measurement system for measuring physical quantities of poorly conductive and nonconductive fluids, such as oils and/or fuels (column 1, lines 7-12) wherein a dielectric constant calculator continuously

calculates the dielectric constant of the fluid (column 3, lines 35-39 and 60-67 and column 8, lines 15-19).

It would have been obvious to one having ordinary skill in the art to modify the invention of McEwan, Reddy, and Innes to include a dielectric constant calculator for calculating the dielectric constants of the materials, as taught by Kuipers, because the combination of McEwan, Reddy, and Innes requires that the dielectric constants of the materials must be set in order to eliminate errors (Innes, column 3, lines 59-62) and the combination would have provided means for automatically determining the dielectric constants, thereby reducing the burden on the user.

Further, since the combination of McEwan, Reddy, and Innes teaches calculating the first pulse amplitude as a function of the dielectric constants of the materials and the invention of Kuipers suggests continuously calculating the dielectric constants of the materials, the combination would have re-calculated the dielectric constants thereby re-calculating the estimated first pulse amplitude/threshold.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan in view of Reddy, III et al. and Innes and further in view of U.S. Patent No. 3,812,422 to De Carolis.

As noted above, McEwan in combination with Reddy and Innes teaches many of the features of the claimed invention and while the invention of McEwan, Reddy, and Innes teaches setting dielectric constants of the materials in order to determine a

value of a first threshold, the combination is silent about the manner in which the dielectric constants are determined before they are set.

De Carolis teaches an apparatus for measuring the levels of fluids and the dielectric constants of the same comprising a dielectric constant calculator (i.e. measuring instrument) (Figure 2) determining the dielectric constant of the second material (i.e. material other than air) as a ratio of the amplitude of the transmit pulse and the amplitude of the reflected pulse (column 1, lines 30-32 and column 5, lines 29-36)

It would have been obvious to one having ordinary skill in the art to modify the invention of McEwan, Reddy, and Innes to include a dielectric constant calculator for calculating the dielectric constants of the materials, as taught by Kuipers, because the combination of McEwan, Reddy, and Innes requires that the dielectric constants of the materials must be set in order to eliminate errors (Innes, column 3, lines 59-62) and the combination would have provided means for automatically determining the dielectric constants, thereby reducing the burden on the user.

Response to Arguments

11. Applicant's arguments with respect to claims 17-20 and 24-42 have been considered but are moot in view of the new ground(s) of rejection.

The following arguments, however, are noted.

Applicant first argues:

"Oswald et al. provide no disclosure of a calculation being performed with respect to determining what the 'predetermined fraction' of the respective peak values that

the threshold levels are set to. It is not inherent from the disclosure of Oswald et al. that a calculation in accordance with claim 24 is being performed.

As described in the Background of the present application, threshold values are conventionally set using empirical methods. The thresholds must be set to a fraction of the peak value of the reflected waves they are being used to detect in order to perform their detection function. Thus, for example, the 'predetermined fraction' to which the thresholds of Oswald et al. are set, could be a value that was determined through empirical methods without performing any calculations. Moreover, even if a calculation is performed to obtained the 'predetermined fraction' value in Oswald et al., there is no disclosure that the calculations includes 'calculating an estimated first reflected pulse amplitude as a function of a reference amplitude of the transmitted microwave pulse', as described in claim 24."

The Examiner first asserts that the invention of Oswald in not included to disclose that a calculation is performed to obtain the "predetermined fraction value" but that the "predetermined fraction" value is used to calculate the thresholds.

The 'calculating step described in claim 24' only requires "calculating an estimated first reflected pulse amplitude as a function of a reference amplitude of the transmitted microwave pulse". The invention of Oswald specifically states that "The positive 90 and negative 92 peak voltage trackers hold the maximum and minimum values of the waveform using capacitors c48 and c49 respectively. The differentiator 131 and comparator 132 detect the instant of the zero slope or the peak" (column 10, lines 49-53) and "The outputs of the voltage trackers 90 and 92 respectively define positive and negative threshold levels, each being a predetermined fraction of the respective peak value" (column 10, lines 53-56).

Therefore, Oswald specifically discloses that a transmitted reference pulse is first received (column 10, lines 24-36), a reference amplitude is then detected (i.e. "The positive 90 and negative 92 peak voltage trackers hold the maximum and minimum values of the waveform using capacitors c48 and c49 respectively. The differentiator

131 and comparator 132 detect the instant of the zero slope or the peak", column 10, lines 49-53) and, as a function of the reference amplitude, an estimated first reflected pulse amplitude/threshold is calculated (i.e. "The outputs of the voltage trackers 90 and 92 respectively define positive and negative threshold levels, each being a predetermined fraction of the respective peak value", column 10, lines 53-56).

Applicant then argues:

"the cited sections of Reddy, III et al. relate to an 'autoreferencing step'. The disclosed autoreferencing step involves setting a threshold level (negative detection threshold) to a maximum positive value, sending a launch pulse down a cable, and attempting to detect a reflection. As long as the level of the reflection is not detected with the set threshold level, the threshold level is automatically stepped down, and the launch pulse is resent. Once the reflection is detected, the threshold level is stepped up one step and the autoreferencing for that cable is set and stored in memory were it may be recalled for later use.

Accordingly, the disclosed 'autoreferencing step' merely automates the empirical methods of the prior art and fails to perform the calculating step described in claim 24. Therefore, Applicant submits that claim 24 is non-obvious in view of the cited references and requests that the rejection be withdrawn."

The Examiner asserts that the 'calculating step described in claim 24' only requires "calculating an estimated first reflected pulse amplitude as a function of a reference amplitude of the transmitted microwave pulse". The invention of Reddy, III, specifically discloses calculating a first reflected pulse amplitude (i.e. detection threshold) as a function of a reference amplitude of a transmitted pulse (i.e. amplitude of the launch pulse) (column 9, lines 6-20, "A launch pulse is then sent down a selected cable. If the level of any reflection seen at the non-inverting input of comparator 314 does not exceed the threshold at the inverting input of the

comparator, then MCU 302 reduces the detection threshold by one step and repeats the process until a reflection is received which exceeds the threshold. MCU 302 then steps the threshold up one step to complete the autoreferencing of that cable. The negative detection threshold for that particular cable is then stored in the EEPROM internal to the MCU 302, where it may be recalled for later use").

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

U.S. Patent No. 6,622,370 to Sherman et al. teaches a method for fabricating suspended transmission lines including transmission lines that propagate microwave and radio frequency energy between components of a circuit.

U.S. Patent No. 6,545,646 to Marchand teaches an integrated dipole detector for microwave imaging including a transmission line that propagates microwave energy to a transmitting element.

U.S. Patent No. 6,529,085 to Hajimiri et al teaches a tunable, distributed, voltage-controlled oscillator including means for introducing a controllable time delay to the microwave signal propagating on the transmission lines of a VCO.

U.S. Patent No. 6,437,669 to Welstand et al. teaches a microwave to millimeter wave frequency substrate interface including a teaching that it is known to efficiently propagate microwave and millimeter wave frequencies through coaxial cables or waveguides.

U.S. Patent No. 6,111,547 to Gau et al. teaches a modularized multiple-feed electromagnetic signal receiving apparatus including means for microwave signals to be converted to an intermediate frequency suitable for propagation in transmission cables.

U.S. Patent No. 5,438,867 to van der Pol teaches a process for measuring the level of fluid in a tank according to the radar principle.

http://hyperphysics.phy-astr.gsu.edu/hbase/ems2.html, "Electromagnetic Spectrum" teaches that microwaves are in the range of 1.6-30 GHz.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday thru Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

jrw
August 16, 2005

Marc S. Hoff
MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800